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ABSTRACT

To determine the short term effects of a large apparel plant on the economy of a relatively isolated, highly rural Ozark area (8 counties), characterized by low income and few employment opportunities, this study compared 1959 data on the study area and the state of Arkansas with similar post plant data (1960-1963). Data were compared on income distribution, major income sources, agriculture, labor force characteristics, educational distribution, public facilities, employment (manufacturing, non-manufacturing, and covered), jobs generated by shirt plant, estimated income increase, and paid unemployment benefits. Approximately a 13 percent increase in total personal income was attributed to the shirt plant which began operations in the fall of 1960 at Gassville in Baxter County. Total annual employment at the plant was estimated to have become stabilized at about 1,170 persons (750 jobs in the plant itself with an estimated $2.2 million payroll 85 indirect jobs in the study area, and 335 jobs elsewhere, most employees being women), but due to a slowdown of male out migration and the addition of previously unemployed females to the unemployed roles, unemployment was not significantly reduced. Though public schools were little affected, improved medical facilities, a public water system, an airport, and a fire department were among the public facilities resulting from plant development. (JC)

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RURAL INDUSTRIALIZATION IN THE OZARKS: CASE STUDY OF A NEW SHIRT PLANT AT GASSVILLE, ARK.

ECONOMIC RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE
IN COOPERATION WITH
ARKANSAS AGRICULTURAL EXPERIMENT STATION
UNIVERSITY OF ARKANSAS

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PREFACE

This publication reports on the short-term economic impact of a shirt plant upon the local economy of a rural area of northern Arkansas. It describes the economy of the area at the time of the plant establishment in 1960 and examines the short-run impact of the plant through 1963.

This is one of a series of such impact studies conducted in selected areas of the United States by the Economic Research Service under contract with the Area Redevelopment Administration, U. S. Department of Commerce.

ACKNOWLEDGMENTS

The author expresses particular appreciation to Alan R. Bird, Deputy Director, Economic Development Division, ERS, for his assistance in planning the study, and to Donald Cooper, owner of Mar-Bax Shirt Company, for providing special information concerning the plant. The methodology in this study was developed in association with the following Economic Research Service economists: John Crecink, Herbert Hoover, Jackson McElveen, and Max Tharp; and with Buis Inman, economist formerly with the Economic Research Service.

November 1967

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SUMMARY

Approximately 13 percent of the increase in total personal income in an eight-county Ozark area in 1960-63 can be attributed to employment at the men's and boys' shirt plant which began operations in the fall of 1960 at Gassville in Baxter County. The plant was responsible for a marked smoothing of both seasonal and longer term fluctuations in income, and thus in business activity.

Although the plant increased short-term employment in the area, it did not significantly reduce the number categorized as unemployed. Contributing to the unemployment rolls were women (formerly not included in the labor force) who, after a period of plant employment, became classified as unemployed, and men, unemployed or intermittently employed, who remained in the area because women in their families worked in the plant. The slowdown of male outmigration increased the need for more jobs in the area for employable men at wage levels that would induce them to work.

The study was conducted to determine the short-term effects of a large apparel plant on the economy of a relatively isolated, highly rural Ozark area in which low incomes and few employment opportunities existed.

The shirt plant ceased to be the only major manufacturing firm in the area in 1964. A large pharmaceutical manufacturing firm was established at Mountain Home early in 1964, and a subsidiary shirt plant began operations at Marshall in Searcy County in 1964. Since the study is concerned only with the Gassville shirt plant and its effects on the area, data beyond 1963 are not included here.

Total annual employment at the plant is estimated to have become stabilized at about 1,170 persons. This employment was estimated at about 750 jobs in the plant itself with an estimated $2.2 million payroll, 85 indirect jobs within the study area, and about 335 jobs elsewhere. Most employees were women.

The cost of freight, utilities, and other inputs (except labor) from within the study area represented about 3 percent of the value of plant output.

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RURAL INDUSTRIALIZATION IN THE OZARKS: CASE STUDY OF A NEW SHIRT PLANT AT GASSVILLE, ARK.

By Max F. Jordan 1/

Industrialization has been hailed by some as the panacea for the low income problem in rural areas. However, the contribution which industrialization may actually make to economic development and thus to improvement of rural incomes is not fully known. The effects of industrialization on area employment, and the expenditure patterns of recipients of the industrial payrolls in rural areas have not been investigated sufficiently to permit generalizations about the way development proceeds in a rural environment and how industrial activity contributes to this development process.

BACKGROUND

This study was initiated to investigate the contribution of industrialization to the economic development of a depressed rural area, and to improve the understanding of how development proceeds in such an area. It was made in an eight-county area in northern Arkansas which had experienced a population decline of nearly 9 percent in 1940-50, and 20 percent in 1950-60. Two of the counties, Marion and Baxter, in a cooperative effort, financed the construction of a large factory building at Gassville, in Baxter County, to be occupied by a manufacturer of men's and boys' shirts.

The shirt plant was established in the fall of 1960 on a site donated by an individual in the local area. Financing for the plant building--an impressive modern building which initially contained 75,000 square feet of floor space--was made possible through a $535,000 bond issue. Voters in the two counties approved the bond issue, which will be paid off by a local property tax levy of 5 mills. The shirt company had a projected employment of 1,000 persons--mostly women--and a projected annual payroll of $2.5 million. It was the effects on the area of this plant, and the accompanying development activities which were selected for study.

Gassville, a town of only 233 population, did not have a public water system before establishment of the plant. Since the guarantee of ample water was a requirement for attracting the plant to the town, and since Gassville was unable to finance a water system, the Area Redevelopment Administration

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1/ Economist, Economic Development Division, Economic Research Service, U.S. Department of Agriculture.

approved a $129,000 grant and a $31,000 loan for a water system--the first public facilities project in the Nation to be approved by ARA.

The period during which the shirt plant was the single major manufacturing firm in the study area was not a long one. The effects of this industrial development were soon confounded with those of other new industries including a large pharmaceutical manufacturing firm established at Mountain Home early in 1964, and a subsidiary shirt plant at Marshall, in Searcy County, established in 1964. For this reason, only data for the period 1960-63 are used in this study. The primary data were collected through interviews with members of the local industrial development commissions, the shirt plant manager, representatives of the Arkansas Department of Labor, county officials, and local community leaders.

The counties represented in the initial labor registration conducted by the Employment Security Division of Arkansas Department of Labor in 1960 when the shirt plant was established were Baxter, Boone, Fulton, Izard, Marion, Newton, Searcy, and Stone (fig. 1). These eight counties, which supplied most of the employees for the plant and the indirect employment generated, comprise the study area. The area is not within easy commuting distance of metropolitan centers or centers with many industrial or other nonagricultural employment opportunities.

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Gassville is in the western part of Baxter County between Yellville and Mountain Home, the county seats of Marion and Baxter Counties, respectively. It is approximately 120 miles from Springfield, Mo. (population 95,865); 135 miles from Little Rock, Ark. (population 107,813); 160 miles from Memphis, Tenn. (population 497,524); 250 miles from Kansas City, Mo. (population 475,539); and 300 miles from Oklahoma City, Okla. (population 324,253).

The largest trade center within the study area is the county seat of Boone County--Harrison--with a population of 6,580. Secondary trade centers are Mountain Home with a population of 2,105, the hub of development activity within Marion and Baxter Counties, and Marshall, population 1,095, which is the county seat of Searcy County.

The major problems in this area of the Ozarks, namely low incomes and few employment opportunities, stem from the nature of its resources and from its highly rural character and relative isolation.

In the early settlement of the region, the agriculture was largely subsistence farming on small holdings. Some complementary employment was provided by the timber industry. Both agriculture and the timber industry have experienced long-term economic decline with a resultant high rate of outmigration, high levels of unemployment and underemployment, and low area incomes.

General livestock farming, largely cattle raising, is probably the most remunerative agricultural activity. To provide a $3,000 net farm income from a typical beef cattle enterprise in the area would require 980 acres of land

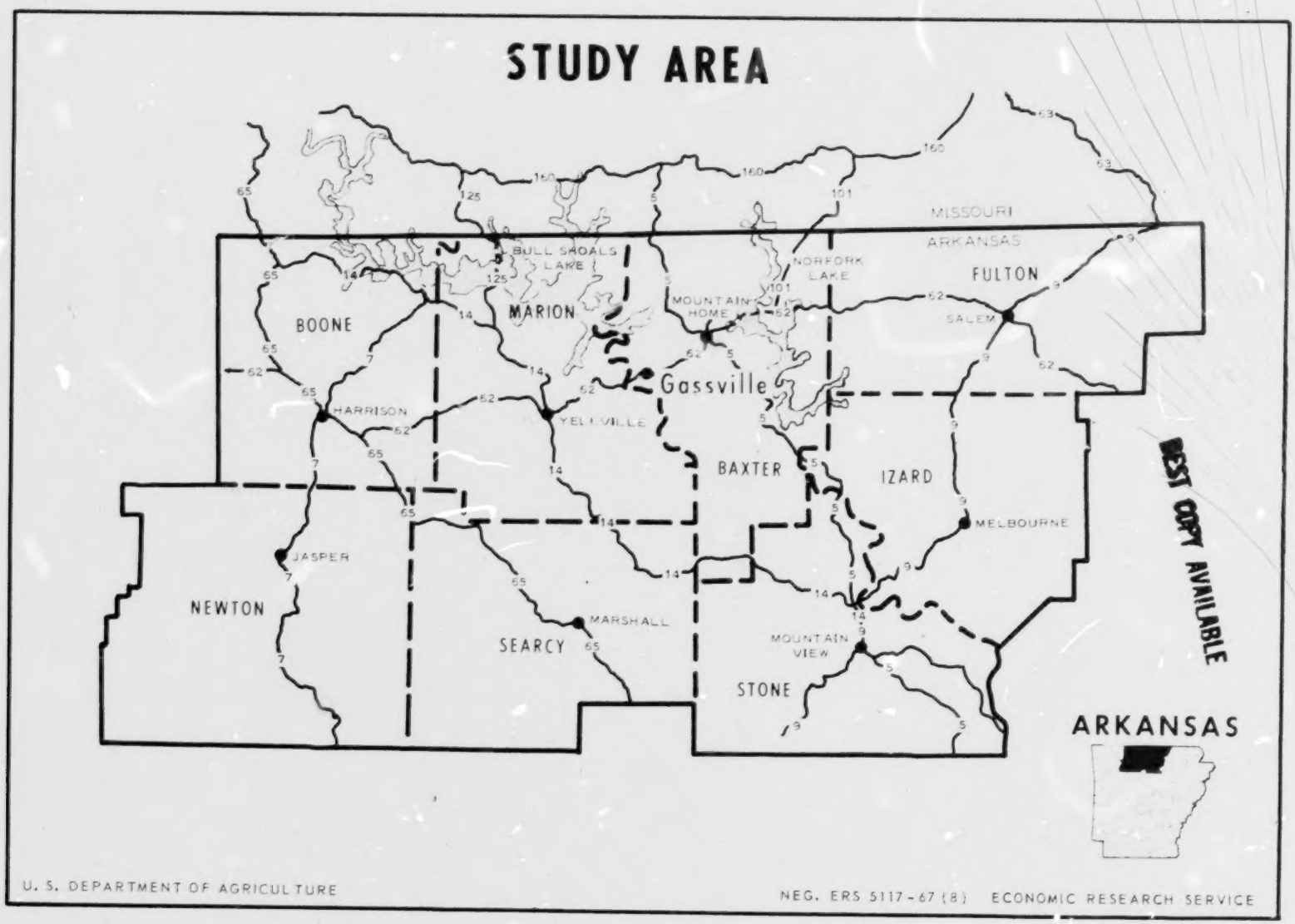

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Figure 1

(five times the average farm size in 1960) and about $50,000 in capital. 2/ A farm business of this type and scope would still only provide part-time employment for the operator. For some of the underemployed farm operators, a recreation enterprise provides part-time employment.

Nearly all of Lake Norfork, a 22,000-acre hydroelectric power and flood control reservoir, and most of Bull Shoals Lake, a 45,400-acre reservoir of the same type, is within the study area. Estimated annual number of visitors at these Corps of Engineers reservoirs in 1960 was 1,121,000 and 2,581,000 at Norfork and Bull Shoals, respectively. These two reservoirs had 23 commercial boat docks with about 1,500 rental boats. Approximately 85 private outdoor recreation enterprises were operated in addition to the boat docks. These private facilities included a number of float trip enterprises on the streams and rivers.

The study area also has two State parks, nearly 383,000 acres of National Forest land, the famous Buffalo River, scenic Highway 7, Blanchard Springs Caverns (under development), and other tourist attractions.

There were approximately 1,025 vacation homes in the area in 1960, and about 40 percent of these were in Marion and Baxter Counties. A large proportion of the people who own vacation homes in the Ozarks are within a few years of retirement. Many are making their vacation homes their permanent residences when they retire. As this shift in residence continues the local communities experience increased demands for improved public facilities.

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ECONOMY OF THE AREA BEFORE ESTABLISHMENT OF THE SHIRT PLANT

Income

A national classification of counties by median income placed all eight counties of the area in the lowest fifth on the basis of 1959 income. 3/ Approximately 64 percent of the families in the study area had 1959 net money incomes of less than $3,000; about 72 percent of the rural farm families, 63 percent of the rural nonfarm families, and 39 percent of the urban families 4/ fell in this income class (table 1). Distribution of families in this class for the entire State was: 66 percent of the rural farm families, 55 percent of the rural nonfarm families, and 34 percent of the urban families. Forty-eight percent of all Arkansas families had net incomes of less than $3,000.

2/ Calculated from data in Hottel, J. B., and Arnold, A. F., Crop Pasture, Timber, and Livestock Enterprises for the Boston Mountain and Ozark Highland Areas of Arkansas, Ark. Agr. Expt. Sta. Rpt. Ser. 135, May 1965.

3/ Haren, C. C., and Glasgow, R. B. Median Family Income and Related Data, by Counties. U.S. Dept. Agr. Statis. Bul. 339, p. 106, Feb., 1964.

4/ All residents of Harrison, Boone County.

Table 1.--Distribution, by income, of all families, urban families, rural nonfarm families, and rural farm families, Arkansas and the study area, 1959

Item	Arkansas			Study area 1/		
	Distribution		Median income	Distribution		Median income
	Number	Percent	Dollars	Number	Percent	Dollars
All families	452,471	100.0	3,184	18,389	100.0	2,264
Under $1,000	64,041	14.2		3,674	20.0	
$1,000-2,999	151,586	33.5		8,044	43.7	
$3,000-9,999	212,085	46.9		6,240	34.0	
$10,000 and over	24,759	5.4		431	2.3	
Urban families	198,919	100.0	4,287	1,984	100.0	3,749
Under $1,000	16,461	8.3		129	6.5	
$1,000-2,999	50,913	25.6		651	32.8	
$3,000-9,999	114,474	57.5		1,079	54.4	
$10,000 and over	17,071	8.6		125	6.3	
Rural nonfarm families	172,576	100.0	2,696	10,390	100.0	2,282
Under $1,000	29,966	17.4		2,102	20.2	
$1,000-2,999	65,012	37.6		4,490	43.2	
$3,000-9,999	72,379	42.0		3,573	34.4	
$10,000 and over	5,219	3.0		225	2.2	
Rural farm families	80,976	100.0	2,075	6,015	100.0	1,908
Under $1,000	17,614	21.8		1,443	24.0	
$1,000-2,999	35,661	44.0		2,903	48.3	
$3,000-9,999	25,232	31.2		1,588	26.4	
$10,000 and over	2,469	3.0		81	1.3	

1/ Baxter, Boone, Fulton, Izard, Marion, Newton, Searcy, and Stone Counties.

Source: U.S. Bureau of the Census, U.S. Census of Population: 1960. U.S. Govt. Print. Off. 1963.

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Five of the eight counties were among the 250 U. S. counties whose rural families had the lowest median incomes in 1959. 5/ The 1959 median income for study area families was $2,264--up nearly 94 percent from the 1949 level, but still well below the "poverty line" of $3,000. The 1959 family median income for the State was $3,184. The median income of rural farm families in the study area in 1959 was $1,908, of rural nonfarm families, $2,282, and of the 1,984 urban families, $3,749.

Income from nonwork and miscellaneous sources in 1959 in the study area amounted to 22 percent of the total money income, compared with 15 percent in the State (table 2). Income from these sources in Baxter County made up nearly 29 percent of the total income and was nearly equal to the total money income from self-employment. Retirees paid an estimated 50 percent of the taxes in Baxter County in 1959. At the end of 1960, 10 percent of the study area population were receiving social security payments.

Table 2.--Income by major sources, residents of Arkansas and of the study area, 1959

Source of income	Arkansas		Study area 1/	
	1,000 dollars	Percent	1,000 dollars	Percent
Total money income 2/	2,009,746	100.0	57,560	100.0
Wages and salaries	1,288,234	64.1	28,571	49.6
Self employment	413,703	20.6	16,053	27.9
Nonwork income and miscellaneous	307,808	15.3	12,937	22.5

1/ Baxter, Boone, Fulton, Izard, Marion, Newton, Searcy, and Stone Counties.
2/ Estimated by multiplying number of recipients by mean dollars.

Source: U.S. Census of Population: 1960.

Agriculture

In 1959, the 7,991 farms in the study area averaged 192 acres each. 6/ However, only 48 percent of the land was in farms. Approximately 10 percent of this land was cropland. Only about 3 percent of the farms had sufficient gross farm sales in 1959 to provide above-poverty-level income from agriculture alone. In 1959, 38 percent of the farm operators reported working off the

5/ Bird, Alan R. Poverty in Rural Areas of the United States, U.S. Dept. Agr., Agr. Econ. Rpt. 63, pp. 39-46, Nov., 1964.
6/ U.S. Bureau of the Census, U.S. Census of Agriculture: 1959. Vol. I, Part 34, Arkansas. U.S. Govt. Print. Off. 1961.

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farm 100 days or more, and 55 percent of the farm families had income from nonfarm sources exceeding the value of farm products sold.

Public Facilities

Medical facilities in the study area were grossly inadequate. In 1960, before establishment of the plant, there were 383 persons per hospital bed and 100 persons aged 65 and over per nursing home bed. One county had only one doctor and no drugstore for its 5,963 people.

Public schools were generally inadequate. In 1959-60, three of the area school districts each had less than 100 average daily attendance, about one-tenth the enrollment needed for an adequate school. Four districts contributed less than $30 per year in local support per pupil in average daily attendance. The 1959-60 State average was $90. In 1960, about 10 percent of the persons in the study area, aged 25 years and over, had less than 5 years of formal education (table 3).

Fourteen towns in the area had public water supplies in 1960. Some of these were not approved systems, and most were inadequate for community needs. Only three towns had public sewage systems, none of which were adequate. Some towns had volunteer fire departments.

Characteristics of the Labor Force

In 1960, there were 945 unemployed persons in the study area (727 males and 218 females) 7/ comprising 4.6 percent of the labor force. The comparable unemployment rate for the State was 5.9 percent.

Approximately one-fourth of the unemployed females had some experience as operatives and kindred workers. Much of this experience was gained in assembly plants in the 1940's and early 1950's by women who were approaching the upper age limit of employability by 1960.

Much of the employment for area residents was seasonal in 1960 (for example, recreation employment, migratory farm work, forestry employment, and related trade and service activities). Thus, the fluctuations in unemployment insurance benefit claims were large.

In 1960, the percentage of the population 14 years of age and over in the labor force was 48.8 in the State and 42.4 in the study area. The percentages for females were 28.5 in the State and only 20.5 in the study area. There were 17,143 females aged 14 and over in the study area who were not in the labor force nor in schools or institutions. 8/

The dependency ratio (number of persons 17 years and under, and 65 years and over, per 1,000 persons 18 to 64 years of age) in the study area (922) approached that in the State in 1960 (935). A greater share of the dependency

7/ U.S. Census of Population: 1960.
8/ U.S. Census of Population: 1960.

Table 3.--Distribution, by years of school completed, of men and women 25 years of age or older, Arkansas and the study area, 1950 and 1960

Item	Arkansas				Study area 1/			
	Male	Median school years completed	Female	Median school years completed	Male	Median school years completed	Female	Median school years completed
	Number	Years	Number	Years	Number	Years	Number	Years
1950								
Persons 25 years and older.	493,610	8.2	507,220	8.5	21,865	8.3	21,370	8.4
No school years	18,135		12,460		440		295	
Elementary 1-4 years	93,705		73,500		2,775		2,185	
5-6 years	72,385		74,385		3,090		2,810	
7 years	41,375		44,915		2,475		2,430	
8 years	89,010		93,510		6,745		6,680	
High school 1-3 years	71,130		85,420		2,570		2,935	
4 years	54,925		74,010		2,250		2,475	
College 1-3 years	23,945		28,045		835		1,040	
4 years or more	17,675		13,535		430		310	
Not reported	11,325		7,440		255		210	
1960								
Persons 25 years and older.	461,915	8.7	502,117	9.1	19,259	8.6	20,062	8.7
No school years	15,605		10,185		361		174	
Elementary 1-4 years	70,445		51,977		1,957		1,495	
5-6 years	53,939		57,005		2,248		1,891	
7 years	33,129		38,942		1,837		1,879	
8 years	82,846		91,029		5,895		6,197	
High school 1-3 years	77,043		103,268		2,648		3,570	
4 years	73,488		98,765		2,824		3,305	
College 1-3 years	28,834		31,366		855		1,110	
4 years	26,586		19,580		634		441	

1/ Baxter, Boone, Fulton, Izard, Marion, Newton, Searcy, and Stone Counties.

Source: U.S. Census of Population: 1950; 1960.

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group were age 65 and over and a smaller share under age 18 in the study area than in the State.

The increase in underemployment and in pockets of unemployment, and the resultant decline in population in the study area were typical of many disadvantaged rural areas. In areas where incomes lag and underemployment is critical, many of the women are likely to be seeking remunerative employment. This was the situation in the study area in 1960 when the shirt plant was established.

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SHORTRUN IMPACT OF THE SHIRT PLANT ON THE STUDY AREA

All the effects of a single development on the total economic growth of an area are not easily measured. Changes in attitudes, community confidence, social adjustments, and other less obvious qualitative changes are particularly difficult to evaluate. The nature of adjustments in family structure accompanying the elevation of rural females to the major-wage-earner role and resultant effect on family expenditure patterns have not been explored, nor have the effects of the availability of specific types of job opportunities on outmigration or on return of migrants to home areas.

Some of the more obvious indicators of the impact of industrial development are in data on employment and payrolls, unemployment, incomes, changes in agriculture and business, and improvement in public facilities.

Employment and Payrolls

From the beginning work force of 50 women who reported to the temporary training facilities of the shirt plant in October, 1960, employment grew to approximately 750 persons at the end of the study period and appeared to be stabilizing at that level. It is estimated that the plant was responsible for 85 additional jobs within the study area and 335 jobs outside the area. Estimates indicate that total annual employment attributable to the plant had stabilized at about 1,170 persons at the end of the study periods (table 4).

During 1963, total covered employment in the study area averaged about 26 percent above that for 1960. 9/ Total covered employment in the State in 1963 was 15 percent above the 1960 average (fig. 2).

Covered nonmanufacturing employment in 1963 was 22 percent above the 1960 average in the study area and about 14 percent above the 1960 average in the State (fig. 3).

9/ Covered employment includes all employment subject to Arkansas Employment Security Law. Exclusions include employment covered by the Railroad Retirement Act; employment in nonprofit organizations, government, domestic service, and agriculture; self-employed; and unpaid family workers.

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Figure 2

Figure 3

Table 4.- Jobs generated by the shirt plant in the first year of stabilized employment

Type	Within area	Outside area	Total
	Number of jobs		
Direct	750	---	750
Business-linked 1/	8	294	302
Consumer-linked 1/	75	40	115
Other 1/	2	1	3
Total	835	335	1,170

1/ Estimates based on procedure outlined in the appendix.

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The seasonal fluctuations in nonmanufacturing study-area employment were due largely to increased employment in trades and services related to the recreation industry in Baxter, Boone, and Marion Counties. Seasonal fluctuations in manufacturing employment in the area were mostly in lumber and wood products manufacturing.

Employment data for the first year of plant operation (1961) indicated no noticeable impact of the plant on trade and services (nonmanufacturing) employment. This employment was off slightly (0.3 percent) from the 1960 average due to a very poor recreation season at the local reservoirs (fig. 3). This employment decline led to speculation that no indirect employment gains would be realized through the establishment of the shirt plant. Actually, the decline in nonmanufacturing employment in the study area accompanying a 13 percent decline in reservoir visits would have been much more pronounced without the support of the industrial payroll.

Study-area data on both numbers of establishments and employment and payrolls indicate considerable business expansion since the establishment of the shirt plant. Estimates were made of the direct and indirect employment generated by the plant for the first year of stabilized employment using the procedure outlined in the appendix.

Total annual expenditures within the study area for business-linked services (utilities, freight, gasoline, and printing) are estimated at approximately $250,000. The estimated value of sales and service receipts per employee for those "in-area" services ranged from $31,265 in gasoline sales to $34,594 in utilities with a total of approximately eight business-linked jobs generated (table 4 and appendix).

If the same relationship between the payroll and the value of the plant output that existed among all manufacturers of men's and boys' shirts in the United States in 1959, exists in the Mar-Bax plant, the total value of the Mar-Bax annual output approximates $8,420,000. 10/ The study area contributes

10/ U.S. Bureau of the Census, U.S. Census of Manufacture: 1958. U.S. Govt. Print. Off. 1961.

slightly over 29 percent of this value (about 26 percent from labor and 3 percent from utilities and freight, and other inputs). Estimated cost of materials imported to manufacture these shirts is $4,700,000. (Imported materials include cloth, thread, buttons, and boxing and packaging materials.) About 25 percent of the input value represents payroll outside the area. At $4,000 per job, this results in business-linked employment of about 294 persons outside the study area.

Expenditures within the study area for consumer goods and services by those in direct and business-linked employment are estimated at $1,645,000, and new jobs resulting from these expenditures are estimated at 75. 11/ The plant generated an estimated 40 consumer-linked jobs outside the study area (27 jobs in trade and 13 jobs in services). The employment classed as "other" on table 4 includes the part-time employment in the operation of the water system, the employment testing and referral service, highway maintenance, and other government services.

The stabilized plant payroll, estimated at $2.2 million, represented about 10 percent of the total area payrolls in 1963. 12/

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Unemployment

The shirt plant is credited with providing about 750 new jobs, thus purportedly improving employment, and thereby reducing unemployment costs.

During the early months of plant operation, turnover, particularly among female employees of the shirt company, was quite high. It is estimated that as many as 1,000 women were released to other employment or became unemployed, if they remained in the study area. Most of these released employees had not been considered members of the labor force until their employment in the plant. Those released employees who had remained employed long enough to become eligible for unemployment insurance benefits, and those unemployed or intermittently employed husbands who remained in the area because of their wives' employment, swelled the list of claimants for unemployment insurance program benefits. In fact, in Marion and Baxter Counties, the counties most directly affected by the plant, there was one-third more unemployment reported in 1961, and 60 percent more in 1963 than in 1960. Unemployment in the eight-county study area was 34 percent greater in 1963 than in 1960. The comparable figures for the State indicated 1.2 percent more unemployment in 1963 than in 1960 (table 5 and fig. 4).

11/ It is estimated that an expenditure of $1,429,000 for trade generated about 48 jobs. Average retail sales per employee varied from $21,342 in drug firms to $51,619 in food firms, and averaged about $30,000 when weighted by the distribution among classes of firms. It is estimated that an expenditure of $216,000 for services generated 27 jobs at the rate of about $8,000 receipts per employee in services employment.

12/ Estimated payrolls in the study area were $20,770,000 in 1963 according to data from Covered Employment and Payrolls, a publication of Arkansas Department of Labor, 1st to 4th Quarter 1963.

Table 5.--Total unemployment insurance benefit payments for Arkansas and the study area, 1960-63

Year	Arkansas	Study area 1/
	Dollars	Dollars
1960	12,691,152	356,982
1961	16,269,214	553,593
1962	12,855,557	445,253
1963	12,844,030	479,850

1/ Baxter, Boone, Fulton, Izard, Marion, Newton, Searcy, and Stone Counties.

Source: Employment Security Division, Arkansas Department of Labor, Statis. Rev., 1960-63.

After establishment of the shirt plant, seasonal trends in unemployment insurance benefit payments were not smoothed. Yet such smoothing might reasonably be expected when a relatively large year-round employer is established in an area which has a high proportion of seasonal and part-time employment.

The shirt plant, by slowing outmigration of men to seek full employment, may have temporarily magnified the unemployment and underemployment problem among local men. This finding does not, of course, mean that the overall

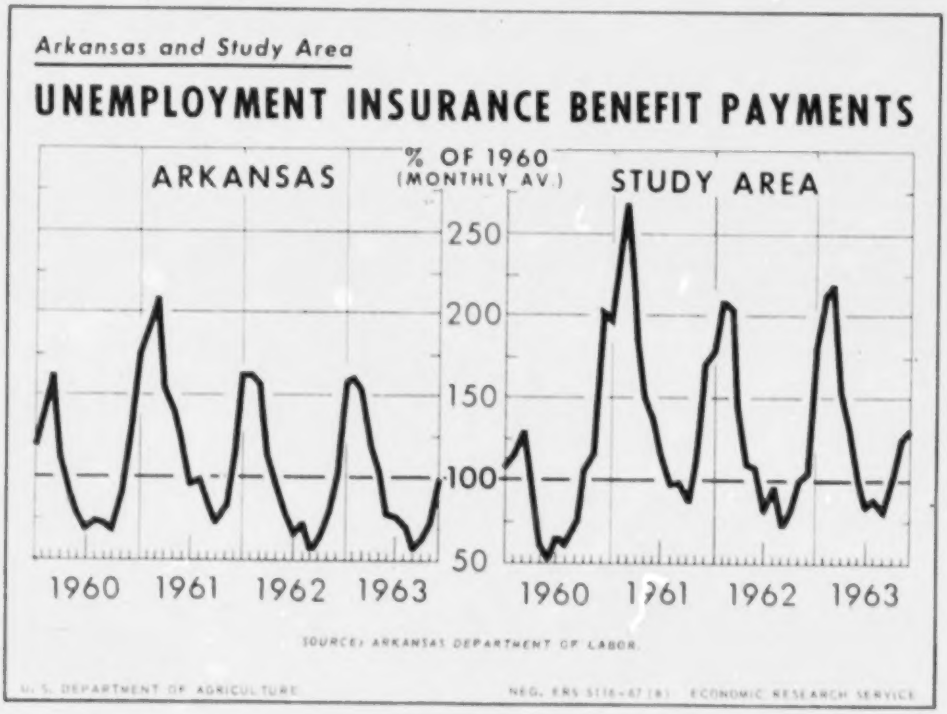

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Figure 4

effect of the new plant on the area was negative. On the contrary, it illustrates the importance of planning the parallel establishment or expansion of several firms or other employment activities rather than relying on any one firm to provide employment.

Income

It is estimated that the study area was able to increase its total personal income by 20 percent between 1960 and 1963, while the population remained virtually unchanged--only a 0.7 percent increase (table 6). Per capita income in the area is thus estimated to have increased nearly 26 percent in the same period, but was still estimated at only $1,243 in 1963.

Total personal income in the State is estimated to have increased about 24 percent, and population 3.6 percent during 1960-63. Per capita income in the State is estimated to have increased only 19 percent in the period, but, at an estimated $1,597, was still ahead of the study area in 1963 (table 6).

Industrial development certainly contributed to the increase in total personal income in the study area. On the basis of the estimate that the plant was responsible for a total of 835 jobs in the area, approximately 13 percent of the increase noted in table 6 can be attributed to employment related to the shirt plant.

One of the contributions of industrialization in the study area was the smoothing out of both seasonal and longer term fluctuations in income.

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Table 6.--Estimated personal and per capita income and population in Arkansas and the study area, 1960 and 1963

Area	Estimated personal income		Estimated per capita income		Estimated population	
	1960	1963	1960	1963	1960	1963
	1,000 dollars		Dollars		Persons	
Arkansas	2,394,000	2,961,000	1,338	1,597	1,789,000	1,854,101
Study area 1/	65,230	82,480	989	1,243	65,904	66,360

1/ Baxter, Boone, Fulton, Izard, Marion, Newton, Searcy, and Stone Counties.

Source: Bureau of Business and Economic Research, College of Business Administration, University of Arkansas, Oct., 1964.

Agriculture

The agriculture of the study area is best described as "subsistence farming." It has provided largely part-time employment for men. In 1960, before the establishment of the shirt plant, less than 10 percent of the employed

females in the study area were employed in agriculture. Many men have apparently continued in farming because of their wives' or daughters' employment in the plant. Production type loans made by the Farmers Home Administration increased nearly 165 percent during the 1960-63 period, indicating increased capacity to incur debt among those in agriculture. Livestock inventories increased an estimated $582,000 in 1960-64. However, prospects for developing many of the farm units into full-time farm businesses, even with additional family income from manufacturing, remain quite dim. Alternative nonfarm jobs for local men are urgently needed.

Public Facilities

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By the end of 1963, medical facilities in the study area were greatly improved. Establishment of four new hospitals averaging nearly 24 beds each, and expansion of some facilities and abandonment of others improved the population per hospital bed ratio from 383 persons per hospital bed in 1960 to 284 persons per hospital bed at the end of 1963. 13/

Three new nursing homes, averaging 44.3 beds each, doubled the number of nursing home beds per 100 persons age 65 and over in the study area since establishment of the plant. 14/ These improvements resulted largely from Hill-Burton Act matching funds. County taxes were increased in at least three of the counties to obtain local matching funds.

The public schools had been little affected by the shirt plant at the end of this study. Each of three school districts in the study area still had less than 100 average daily attendance in 1963-64, and three districts still contributed less than one-third of the state average in local support per pupil in average daily attendance. The State average had increased to $146 in 1963-64, while the average of these three districts had increased to only $34.

The new Gassville water system, which was completed in the spring of 1962, brought to 15 the number of towns in the study area with public water systems. In addition to serving the shirt plant, by the end of 1963, the Gassville Water Improvement District was serving the public school, 5 commercial customers, and approximately 80 residential customers. A volunteer fire department with a station and a fire truck was established in Gassville in November, 1964.

The Federal Aviation Agency allocated $132,767 in matching funds for construction of a $265,534 municipal airport about 6 miles from Gassville. The 3,500-foot paved and lighted runway was completed in 1966 in the 729-acre industrial park being developed by the Industrial Development Corporation of the Ozarks. This park is part of an attempt to attract more industries capable of offering employment for men.

13/ Division of Hospitals, State Board of Health, Little Rock, Ark., Feb. 1, 1964.

14/ Division of Hospitals, State Board of Health, Little Rock, Ark., Feb. 1, 1964.

PROSPECTS AND NEEDS FOR OTHER DEVELOPMENTS

Employment in the Gassville shirt plant and the subsidiary plant (Flintrock) at Marshall in Searcy County appears to have stabilized. Virtually no more local women are seeking shirt plant employment at prevailing wage levels.

The type of industrial development fostered by the shirt plant project initially, suits the type of labor resources in the study area and similar rural areas. Low wage, labor intensive industries do provide opportunities for the unskilled, unemployed, and underemployed to add to their incomes. A plant such as the one at Gassville, however, would have little effect on the status of male laborers or skilled female laborers.

The relative competitive position of the shirt plant with the large pharmaceutical manufacturer at Mountain Home and the other local employers in offering good wages and other benefits is not easily adjudged. Combinations of flat rates and piece rates make average wage comparisons difficult. The pharmaceutical firm provides its employees with free uniforms made by a small institutional uniform manufacturer within the study area.

A possibility for expanded local employment would be a plant manufacturing paperboard boxes and corrugated shipping cartons. Such a plant could employ mostly males and could provide packaging and shipping containers for the pharmaceutical plant, the uniform plant, the shirt plants, and others. The economic feasibility of such a plant should be examined in any appraisal of the potential industries for male employment.

The need in 1960 was, and is now, for year-round male nonfarm employment opportunities. Expansion of the apparel plants, the pharamaceutical plant, and other female employment opportunities has added to this need. The increased employment of females has stimulated local economic activity.

The dependency ratio in the study area and the level of family income in the area (median $2,264 in 1959), make it improbable that all family net money incomes could attain the target level of $4,000 in 1975--$4,000 represents a projection of the 1959 "poverty" income level of $3,000--without considerable further Federal expenditures in the area. 15/ Even if adequate male employment opportunities could be provided and female participation in the labor force would continue to increase, the large number of persons--retirees and others--dependent on nonwork income would tend to hold down family income levels. For many families, considerable adjustments in public assistance payments are likely needed, before incomes can be significantly increased.

15/ The study area qualifies for Federal financial and technical assistance under provisions of the Public Works and Economic Development Act of 1965 (P.L. 89-136), as well as other assistance programs. The counties in the study area are eligible under this Act for designation as redevelopment areas and as parts of an economic development district. The area is also included in the Ozark Economic Development Region.

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APPENDIX

GUIDE FOR ESTIMATING THE SHORTRUN EMPLOYMENT IMPACT OF INDUSTRIAL DEVELOPMENT PROJECTS

This appendix gives definitions and techniques used as a guide by the Economic Research Service in measuring the shortrun extent of project-generated employment--both total employment due to the project and employment within the project area.

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The Project Area

The project area consists of the county or group of contiguous counties in which most of the project employees live.

The "Shortrun"

"Shortrun" covers the period from the beginning of the project to the end of the first year of full operation. Every effort should be made to use as a basis for all estimates, a 12-month period that is representative of the typical conditions expected of project operation and the relationship of the project to the project area. Estimates based on this selected time period may involve partly direct observation of a period of actual project operation and partly projection from these figures.

Employment Generated

Apart from the construction phase, the employment generated by an industrial development project may be of these four types: direct, business-linked, consumer-linked, or other, including local government.

For each of these types, the shortrun employment within and outside the project area may be estimated, as appropriate, by using the following procedures. Then total employment within and outside the project area may be derived.

1. Direct employment is the employment generated directly in the project, measured by the number of new jobs in the project. Unless otherwise determined, the average number of employees paid each month may be considered to be equivalent to the total number of new jobs.

   The project is more likely to create new jobs than to offer replacement for already established jobs when--

   A. it enables fuller development of local resources, particularly when it brings into the labor force people who were formerly excluded from it and when it enables increased education and on-the-job training of local people. Such training is of

greatest value when it develops skills that are readily transferable or adaptable to use in other projects or industries.

B. the technology is superior and the production processes, products, or resulting services are relatively novel and show promise of catering to an expanding demand. These conditions would favor the production of goods and services likely to be demanded by medium- and high-income people.

C. the products or services provided by the project are marketed through an established national distributor who contracts with the project management.

D. the project is a branch of the nearest firm in the same industry, and the parent firm continues and plans to continue operation at the original site. (New employment could still result if the parent plant closed for good and sufficient reasons. Such reasons might include the obsolescence of equipment and of production and marketing methods, the opportunity to consolidate production in a more positive economic and social environment, as evidenced by the development of superior public facilities and reduced racial strife at the new site, and a significant change in the geographic distribution of the clientele.)

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At present, the figure for total employment gives equal weighting to jobs for men and women, and for various skill levels and pay rates. All the direct employment is generally contained within the project areas. (There may be instances where a significant number of employees, relative to the size of the project, reside and work outside the project area. Examples are truck drivers or salesmen. In such instances, their jobs are considered part of the business-linked employment outside the project area.)

2. Business-linked employment is the employment generated in project-related businesses through the establishment or expansion of these businesses as a direct result of the establishment of the initial project. These project-related businesses are those supplying goods or services (other than personnel listed on the project payroll) used directly in the operation of the project and in the marketing, fabrication, and processing of goods and services therefrom.

To determine business-linked employment, proceed as follows:

A. Determine total annual expenditures of the project under study for inputs of goods and services (except direct employment), and subtotals for the various goods and services for which separate employment estimates are to be made.

B. For each of these goods and services, determine the value of total expenditure on goods and services originating within the project area. Then use one of the following procedures:

(1) (a) Estimate the amounts of the expenditures that represent gross payrolls in the business-linked firms, or otherwise estimate these gross payrolls directly. (Gross payrolls mean payrolls before deductions for taxes and other purposes.)

(b) Determine the number of jobs represented by these payrolls. This determination may be made from the Census of Manufacturing, the Census of Business, other industry figures, or specially derived local data.

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i. For each business-linked firm, determine total (gross) payroll and corresponding man-years of employment.

ii. Divide the latter into the former to give average gross payroll per man-year of employment.

iii. Divide the figures thus obtained into the corresponding figures in B (1) (a) above.

iv. Sum to obtain total within-area business-linked employment.

(2) (a) For each business-linked firm, determine the value of production per employee, as defined in the Census of Manufacturing, or the value of services (receipts) per employee where appropriate. The value of production is the total value of shipments plus or minus the net change in inventory. (Census of Manufacturing, Volume II, Industry Statistics, table 3.) These coefficients may be based on the Census of Manufacturing, the Census of Business, other industry figures, or specially derived local data.

(b) For each of the goods and services in item A above, divide the value of total expenditures on goods and services by the respective values per employees derived in item (2) (a).

(c) Sum to obtain total within-area business-linked employment.

C. For each of the goods and services (A, above) determine the value of total expenditure on goods and services originating <u>outside the project area</u>.

(1) Subtract item B from item A.

(2) For each of these goods and services, derive the corresponding employment figures, using the same procedure as

in Item B above. The use of National or industry coefficients will generally be appropriate.

D. In the case that products of the project represent a significant input in other businesses, determine the additional employment in these businesses, both within and outside the project area, that can be directly attributed to the use of the products of the project under study. Unless there is special evidence of direct relationship, assume that this additional employment is zero. 1/

E. There may be business-linked firms that are not accounted for in items B-D such as a limestone plant associated with a cement factory, or a second factory newly established as a branch of an original project. In such cases, determine that amount of the employment in the new firm that is directly attributable to the original project and allocate that amount as business-linked.

3. Consumer-linked employment is the employment in retail trade and consumer service industries resulting from the payroll expenditure of employees of the project under study and of the business-linked firms. The "within area" and "outside" consumer-linked employment are estimated as follows:

A. Consumer-linked jobs within the project area:

(1) Add project payroll and within-area business-linked payroll. If the business-linked payroll was not estimated in determination of business-linked employment in 2 B above (that is, if procedure B (2) was used to determine business-linked employment), an approximation of business-linked payrolls can be obtained by applying a figure of 10 percent of value of retail trade (represented by relevant annual project expenditures) and 25 percent of services expenditure in business-linked firms to the total annual expenditure subtotals developed in 2 A above and summing.

(2) If it is deemed necessary and feasible, determine share of gross project and business-linked payrolls that are "take-home." (An approximation can be obtained by using 90 percent of gross payrolls as "take-home" unless special local information dictates the use of another figure.)

(3) Estimate dollar amount of take-home pay which is expended in retail trade (retail sales). (An approximation can be

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1/ It is reasonable to expect that projects receiving public program funds would, in fact, generate some additional employment in businesses using their product. Otherwise, such projects might be in competition with previously established private businesses. However, the measurement of the precise extent of such increased employment is likely to involve a detailed investigation of the project industry and related industries.

obtained by using 75 percent of total take-home pay as portion to retail trade, unless special local information dictates the use of another figure.)

(4) Estimate the number of jobs generated in retail sales by dividing amount obtained in item (3) above by the average total sales per employee in retail trade in the project area. (An approximation can be obtained by using $30,000 as divisor, unless special local information dictates use of another figure.)

(5) Estimate dollar amount of take-home pay which is expended for all services. Unless specific local information dictates otherwise, this total expenditure for services may be assumed to be equivalent to 15 percent of the value of retail sales (item (3) above). This 15 percent comprises 10 percent for selected services and 5 percent for health and medical, legal, and educational services.

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(6) Estimate the number of jobs generated in all services by dividing the amount obtained in item (5) above by the average total receipts per employee services. An approximation may be obtained by using $8,000 as the divisor to represent receipts per employee in services employment, unless special local information dictates the use of another figure.

(7) Sum items (4) and (6) above to estimate total consumer-linked jobs due to within-area business-linked payroll and project payroll.

(8) Estimate the number of these consumer-linked jobs that would be generated within the project area. Ordinarily this estimate may be made by giving consideration to:

(a) size of study area.

(b) size of the largest town or city and the associated services available within the area.

(c) the accessibility to local residents of competing and supplementary facilities and services.

(d) reported and observed local customs, habits, and attitudes, including available data on consumer expenditures.

(e) other special features of the area that can be expected to influence the geographic pattern of consumer spending.

B. Consumer-linked jobs outside the project area:

(1) Part of the consumer-linked jobs outside the project area may have been estimated (the residual of item (7) minus item (8) in A above). These jobs are those due to the expenditure outside the project area of project payrolls and within-area business-linked payrolls.

(2) To estimate the consumer-linked jobs generated outside the area from business-linked payrolls outside the area, proceed as follows:

(a) If it is deemed necessary and feasible, estimate "take-home" pay from business-linked payrolls (outside the area). An approximation may be obtained by using 85 percent of gross payrolls attributable to relevant business-linked activities.

(b) Compute the total amount spent for retail trade (retail sales) as 75 percent of "take-home" pay.

(c) Determine the jobs generated in retail trade by dividing the total amount of retail sales (in (b)) by $25,000, representing total retail sales per employee in retail trade.

(d) Estimate dollar amount of take home pay which is expended for all services. Unless specific local information dictates otherwise, assume this total expenditure for services to be equivalent to 15 percent of the value of retail sales (item (b)). This 15 percent comprises 10 percent for selected services and 5 percent for health and medical, legal, and educational services.

(e) Estimate number of jobs generated in all services by dividing amount obtained in item (d) by the average total receipts per employee in services. Use $8,000 as the divisor, representing receipts per employee in services employment, unless special information dictates the use of another figure.

(f) Sum items (c) and (e) to determine total consumer-linked jobs from business-linked payrolls outside the area.

(3) Sum items (1) and (2) to determine total consumer-linked jobs outside the area.

4. Other employment comprises employment that is not within the above categories. It includes environment- and government-linked employment (health, education, police protection, roads and highways, city and county administration, and similar employment). In

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the shortrun the "other" employment generated by a project may be practically nil. However, in some instances, consideration should be given this type of employment. Changes in "other employment" brought about by the project may be largely dependent upon the project effects on migration of the population.

To estimate the project effect on "other employment" proceed as follows:

A. Estimate total study area population.

B. Compute the number of full-time equivalent government employees in the area (Census of Governments, 1962, Volume III, table 20).

C. Estimate the population required to support one full-time equivalent government employee. (Divide item A by item B.)

D. Estimate the population required to support one government employee. (Divide item B by item C.)

E. Evaluate the amount of migration effect (in or out) or the population-holding effect of the project in absolute numbers.

F. Estimate the project effect on local government employment. (Divide item E by item D.)

These estimates assume that the services provided by local governments and the organization and staffing of the agencies providing these services are similar in type and quality, both before and after the establishment of the project.

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